

## C L A I M S

1. A radar oscillator comprising:
  - an oscillation unit having an amplifier, an LC resonator which is connected to the amplifier, has at least an inductance component and a capacitance component, and resonates at a predetermined resonant frequency, and a feedback circuit which performs positive feedback from an output side of the amplifier to an input side of the amplifier, the oscillation unit outputting an oscillation signal having a frequency determined by the resonant frequency of the LC resonator;
  - a first switch circuit which is connected to a power supply unit to the amplifier of the oscillation unit, which turns off an electric power supply by the power supply unit to the amplifier in a period in which a pulse signal representing a transmitting period for transmitting the oscillation signal as a transmitting radar signal is not input to set the oscillation unit in a non-oscillation state, and which turns on the electric power supply by the power supply unit to the amplifier in a period in which the pulse signal is input to set the oscillation unit in an oscillation state; and
  - a second switch circuit which is connected to the power supply unit to the LC resonator of the oscillation unit, which turns on the electric power

supply by the power supply unit to the LC resonator in a predetermined period immediately before the pulse signal is input in a period in which the pulse signal is not input to supply a predetermined current to the 5 LC resonator, and which turns off the electric power supply by the power supply unit to the LC resonator at a timing at which the pulse signal is input to stop the supply of the predetermined current to the LC resonator, so that activation of an oscillation 10 operation of the oscillation unit is accelerated.

2. The radar oscillator according to claim 1, wherein

the LC resonator is formed by a parallel resonant circuit constituted by a coil and a capacitor.

15 3. The radar oscillator according to claim 2, wherein

the coil has an intermediate tap, and a buffer connected to the intermediate tap of the coil is arranged in the feedback circuit.

20 4. The radar oscillator according to claim 1, wherein

the LC resonator is formed by a  $\lambda/4$  transmission path.

25 5. The radar oscillator according to claim 1, wherein

the LC resonator includes first and second LC resonators formed by parallel resonant circuits

constituted by coils and capacitors, respectively,

the amplifier includes a first transistor connected from a collector thereof to the first LC resonator, and

5 the feedback circuit includes a second transistor connected from a collector thereof to the second LC resonator, a signal output from the collector of the first transistor or the first LC resonator is received by a base of the second transistor, and a signal output  
10 from the collector of the second transistor or the second LC resonator is input to a base of the first transistor.

6. The radar oscillator according to claim 5,  
wherein

15 the coils of the first and second LC resonators have intermediate taps, respectively, and first and second buffers connected between the intermediate taps of the coils and the bases of the first and second transistors, respectively, are  
20 arranged in the feedback circuit.

7. The radar oscillator according to claim 5,  
wherein

the first and second LC resonators are formed by  $\lambda/4$  transmission paths, respectively.

25 8. The radar oscillator according to claim 5,  
comprising

a third switch circuit which connects between

output terminals of the first and second LC resonators to each other until a predetermined period has elapsed after inputting of the pulse signal is stopped, thereby accelerating convergence of the oscillation signal.

5       9. The radar oscillator according to claim 6,  
comprising

10      a third switch circuit which connects between output terminals of the first and second LC resonators to each other until a predetermined period has elapsed after inputting of the pulse signal is stopped, thereby accelerating convergence of the oscillation signal.

10. The radar oscillator according to claim 7,  
comprising

15      a third switch circuit which connects between output terminals of the first and second LC resonators to each other until a predetermined period has elapsed after inputting of the pulse signal is stopped, thereby accelerating convergence of the oscillation signal.